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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,230	12/19/2001	Robert P. Carlstedt	60,130-1027/01MRA0149	7385

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EXAMINER

SPISICH, GEORGE D

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,230

Applicant(s)

CARLSTEDT ET AL.

Examiner

George D. Spisich

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 13, 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings filed 12/13/04 are objected to because Figures 1-4 are still inconsistent in content. Figures 2 and 3 do not show elements 14 and/or 16 of the fluid actuator as they are shown in Figures 1 and 4. It appears that Figs. 1 and 4 are a different embodiment than Figs. 2 and 3. Examiner is interpreting Figs. 2 and 3 (as originally filed and as filed on 12/13/04) as Applicant's invention. To clarify, the views of Figures 2 and 3 do not properly show the element 14 of the fluid actuator. This element would be seen and should be shown in all the figures.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5, the recitation of "a knuckle supported by said second portion of said first control arm" is unclear.

From the Specification and Drawings, Applicant is disclosing an upper and lower control arm arrangement with actuator(s) supported on the control arms, which is best represented by originally filed Figs. 2 and 3. Figs. 2 and 3 are/appear consistent with the specification and claims. Examiner is interpreting the control arms as separate elements from the actuators and not simply a portion of the actuator that is called the control arm. The actuator appears to be a different element than the control arm. Not only does the control arm (the triangular element shown in Figure 2) not appear to be shown in the Figures as supporting the knuckle, but Examiner believes that should the

end of the triangular control arm be connected to and support the knuckle, it would be impossible to have actuator(s) move the connection point.

To correct this issue, in claim 1, line 5, examiner suggests deleting "by said second portion of said first control arm" and in claim 1, line 6, deleting "said second portion of said second control arm".

Examiner maintains this rejection and further clarifies that the claim language does not clearly define that the actuators are an element that makes up the control arm. This is why the examiner has stated that the end of the control arm connected to the steering knuckle would not allow the knuckle to be moved since Examiner has not considered the end of the control arms to be the end of the fluid actuators. Examiner suggests using language such as "first control arm further having first and second actuators and the first and second actuators converge to provide a first connection point for supporting the knuckle.....".

The amendment filed 12/13/04 on page 8 in addressing the 112 rejections suggests that Applicant believes that this new language "provided by" could include the fluid actuator as part of the control arm (which Examiner believes is the invention) or the fluid actuator could make up the control arm in it's entirety. This may be the source of the confusion with the Figures. Applicant has not disclosed nor argued that the fluid actuators could make up the control arm in it's entirety until now. Original description of Fig. 2 is disclosed as a top view of Fig. 1.

For examining purposes, Examiner is still considering that Figures 2 and 3 are Applicant's invention, and although the rejections that follow could be interpreted to

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include a fluid actuator that makes up a control arm in its entirety, Examiner is maintaining that a separate control arm be provided to meet Applicant's invention as was considered. However, Examiner states that both embodiments are properly disclosed by the references in the maintained rejections.

Claim 9, line 2 is unclear. There is claimed "said first control arms". It is not clear that there are a plurality of first control arms.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Abstract 62125907 (provided in Applicant's 7/19/04 IDS) in view of WO91/14609 (cited by Examiner in action mailed 6/13/03).

Abstract '907 discloses a suspension assembly which includes a frame and first and second actuators (11, 12) converging and providing a first connection for a knuckle, and a third actuator (13) providing a second connection for the knuckle. The purpose of Abstract '907 is not only to reduce steering force at low speed, but as also stated in the

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“Purpose”, is “To improve.... stability in straight advance at the time of high speed by varying the caster angle of a suspension....”.

Abstract '907 includes sensors (6,7) for detecting vehicle ride conditions and the first, second and third actuators are controlled to adjust camber in response to the sensed vehicle ride conditions.

Either of the actuators is arranged as an upper or lower control arm since a plurality of actuators is shown acting as both the upper and lower control arms.

It would be obvious that this system is or would be known to include a steering linkage mechanically connected to the knuckle with the steering wheel. As the steering wheel angle is sensed, it is considered that the steering linkage position sensor is sensed.

The first and second actuators are generally coplanar.

However, Abstract '907 does not show a separate element considered a control arm (as disclosed by the Applicant) in connection and provided by the actuators.

WO '609 discloses a suspension control arm having an actuator mounted on and generally parallel with the control arm for adjusting the camber of a vehicle wheel.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension of Abstract '907 by providing the actuators support with a control arm for the added strength and stability a control arm would provide. This arrangement would be structurally identical and work as Applicant's invention would.

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Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Abstract '907 in view of WO '609 as applied to claims 1-5, 8, 9 and 11 above, and further in view of Mackle et al. (USPN 6,347,802, cited by Examiner in action mailed 6/13/03)

Abstract '907 and WO '609 have been discussed in the previous rejection.

However, Abstract '907 and WO '609 does not disclose adjusting the geometry of the suspension by sensing vehicle yaw or using a brake signal.

Mackle et al. disclose vehicle suspension arrangement having an actuator to adjust the wheel geometry based on sensed vehicle conditions. Mackle et al. disclose the vehicle conditions to include yaw rate (in col. 2, line 48) and a brake signal (in col. 3, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to monitor and sense the vehicle yaw rate, and the vehicle anti-lock brake system and interrelate this vehicle ride condition with the adjustment of the camber, caster, toe or track of the suspension of Abstract '907 in view of WO '609 as taught by Mackle et al. to achieve enhanced dynamic vehicle suspension performance.

Examiner maintains that the desire to have an active suspension that changes the geometry of the suspension (which is shown by both the Abstract '907 and WO '609) is beneficial and the teaching of adjusting the suspension geometry based on the vehicle ride conditions that are taught by Mackle et al. is obvious and able to be combined with the suspension of Abstract '907 in view of WO '609 so as to provide a better and more responsive active suspension for active geometry adjustment.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abstract '907 in view of WO '609 as applied to claims 1-5, 8, 9 and 11 above, and further in view of Gultinan (USPN 5,348,334 cited by Examiner in action mailed 6/13/03).

Abstract '907 and WO '609 have been discussed in a prior rejection. However neither specifically discloses the use of a ball joint as the connection between the actuator and the knuckle.

Gultinan teaches the use of a ball joint connection between a control arm and a knuckle.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a ball joint as the connection as taught by Gultinan in order to provide a connection with a greater degree of motion to allow for increased adjustability.

Claims 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (USPN 4,371,191) in view of Mackle et al. (USPN 6,347,802).

Goldberg et al. (as shown in Figure 12) disclose a suspension assembly and the method of adjusting the vehicle suspension assembly comprising the steps of providing a mechanical input from a steering wheel to spaced apart wheels (this arrangement is shown in Figure 6) and turning the wheels in response to the mechanical input, detecting vehicle ride conditions, one of which a steering wheel position sensor (S2) and manipulating first, second and third actuators in response to the vehicle ride

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conditions and adjusting the attitude of the wheels with the actuators to a desired position. In Figure 12, there is a top view showing the first and second actuators. In col. 15, lines 63-68, there is disclosed that the lower control arm arrangement may also be actuators, which would be the third (and fourth) actuator.

Goldberg et al. disclose a sensor (shown in Figure 6) detecting ride conditions and a controller connected to the sensor and the actuators commanding the first, second and third actuators to adjust the caster, camber, toe and/or track in response to the vehicle ride conditions to achieve a desired position.

However, Goldberg et al. does not disclose the vehicle condition sensors to specifically sense yaw or include a braking sensor. Goldberg et al. does disclose the sensing of the wheel heights to detect the dynamic forces and therefore the relation of the vehicle body during driving. It could then be considered that these sensors detect vehicle yaw to be used to adjust the wheel geometry accordingly.

Mackle et al. (USPN 6,347,802) disclose vehicle suspension arrangement having an actuator to adjust the wheel geometry based on sensed vehicle conditions. Mackle et al. disclose the vehicle conditions to include yaw rate (in col. 2, line 48) and a brake signal (in col. 3, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Goldberg et al. to further monitor and sense the vehicle yaw rate, and the vehicle anti-lock brake system as taught by Mackle et al. and interrelate this vehicle ride condition with the adjustment of the camber, caster, toe and/or track so as to achieve enhanced dynamic vehicle suspension performance.

Response to Arguments

With respect to Applicant's argument to the 112 2nd paragraph rejection, Applicant argues that "the actuator can be part of a separate component considered to be a control arm or provide the control arm in its entirety", Examiner disagrees and maintains the rejection. As discussed in the Drawing objection and the 112 2nd paragraph rejection above, Applicant has not disclosed that the fluid actuator can make up the control arm in its entirety. As originally disclosed the description of Figure 2 is "top schematic view of steering assembly shown in Figure 1", therefore, it has only been disclosed that the fluid actuators are provided in addition to and in connection with control arms. Regarding the newly added language in claim 1, "provided by" does not specifically require that only a fluid actuator is being claimed. Examiner is interpreting the phrase "provided by" to mean the same as "in connection".

With respect to Applicant's argument that Examiner cannot make a combination using an untranslated reference. It is Examiners position that the references of Abstract '907 and '609 clearly disclose the detail that Examiner is relying on and a translation is not necessary since Examiner is not reading into the reference nor relying on detail that has not been already been clearly translated.

With respect to Applicant's argument that Abstract '907 and '609 are not related such that they could be combined and the stated motivation is insufficient, Examiner disagrees and maintains the rejection. As clarified in the rejection, Abstract '907 also has the purpose of improving the stability in straight advance at the time of high speed.

This is then in the realm of '609 and the structure and operation of the two references are compatible and are properly combined to meet Applicant's claim. The motivation of providing added strength and stability in the control are is considered proper motivation. It is obvious that a fluid actuator mounted to a broader control arm would provide the added strength and stability.

With respect to Applicant's argument that Mackle is not related to the Abstract and '609, Examiner disagrees and maintains the rejection. As stated above, Abstract '907 also improves high speed stability with the camber adjustment. As such, Examiner maintains that all the references are relatable and Mackle properly teaches the aspect of considered brake and yaw input to provide the input for wheel adjustment and is properly combined with Abstract '907 and '609 and the motivation in proper.

With respect to Applicant's argument that it would not be proper to modify Abstract '907 and '609 in view of Giltinan to provide a ball joint, Examiner disagrees and maintains the rejection. A ball joint is a common and known connection in the vehicle steering and suspension arts and providing a ball joint in the combination of Abstract '907 and '609 is proper and the motivation is accurate.

With respect to Applicant's argument that the references Goldberg and Mackle are not able to be combined, Examiner disagrees and maintains that the rejection and combination is proper. Examiner simply has pointed out an actively adjustable suspension that could also be adjusted by sensing vehicle yaw and by using a brake sensor. This is clearly shown by Mackle et al. and Examiner maintains that it is proper

to use these teachings to modify the suspension arrangement of Goldberg. The motivation is proper.

With respect to Applicant's argument that if Goldberg does in fact teach yaw detection that the teaching of Mackle et al. would be duplicative and provide no benefit. While Examiner agrees with this statement but has taken the position in the rejection that Goldberg must be modified with specific vehicle yaw sensing. Examiner has taken a position on the reference (although also shows a different interpretation of Goldberg that is not relied upon) so as to clearly provide a 103 rejection that is both proper and unarguable.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George D. Spisich whose telephone number is (703) 305-6495. The examiner can normally be reached on Monday to Friday 9:30-7:00 except alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (703) 308-2089. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George D. Spisich
February 26, 2005


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3/7/05